

LIV.—*Report on the Polyzoa of the Queen Charlotte Islands.*
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[Plates XIX. & XX.]

IN 1878 Dr. G. M. Dawson conducted an exploration of the Queen Charlotte Islands, as one of the staff of the Geological Survey of Canada. The results of his expedition are embodied in a valuable report which appears in the official "Report of Progress" for the year 1878-79*.

A series of dredgings formed a part of the plan of operations; and large quantities of material were obtained at various points off the coasts. Mr. J. F. Whiteaves has reported on the Echinodermata, the principal portions of the Mollusca, and some other Invertebrate tribes. The Crustacea have been dealt with by Prof. S. I. Smith, of Yale College. The Polyzoa and Hydroida have been placed in my hands for examination; and to the former the present Report is devoted.

The Queen Charlotte Islands are situated in the North Pacific, and "form a compact archipelago, separated by wide waterways from the islands which fringe the shore of the mainland of British Columbia to the west, and the coast of the southern extremity of Alaska to the north." They are "included in north latitude between $54^{\circ} 15'$ and $51^{\circ} 55'$, in west longitude between $131^{\circ} 2'$ and $133^{\circ} 5'$. The extreme length from point to point is 156 miles, the greatest width, in a direction at right angles to the length, 52 miles" (Dawson).

The average temperature of the surface-water in the neighbourhood of the islands was determined by frequent observations to be $53^{\circ}.8$ F. for the summer months (June to August inclusive). Fifteen observations taken between September 12th and October 17th gave a mean of $50^{\circ}.7$ F.

The dredgings which have been placed in my hands were taken chiefly at three or four stations—one at the extreme north of the islands, and the rest off the south-eastern portions of the coast.

I shall reserve all remarks on the facies of the Polyzoan fauna of the islands and its relation to the general subject of distribution for the close of the Report. The number of undescribed species is large, including some very striking and interesting forms; but so far no new generic type has occurred. The beauty and the luxuriant growth of the specimens are remarkable; the old shells taken up are thickly incrustated

* 'Geological Survey of Canada, Report of Progress for 1878-9: published by authority of Parliament, Montreal, 1880.'

by splendid masses of the different species, each valve usually presenting a rich variety of forms. The fauna, so far as the Polyzoa are concerned, points to very favourable climatic conditions.

List of Species.

Subkingdom MOLLUSCA.

Class POLYZOA, J. V. Thompson.

Subclass HOLOBRANCHIA, Lankester.

Group ECTOPROCTA, Nitsche.

Order GYMNOLÆMATA, Allman.

Suborder CHEILOSTOMATA, Busk.

Family Aeteidæ.

ÆTEA, Lamouroux.

Aetea ligulata, Busk.

Houston Stewart Channel; off Cumshewa Harbour; Dolomite Narrows*. [Coast of Patagonia; Straits of Magellan (*Darwin*); Victoria.]

Family Eucratiidæ.

GEMELLARIA, Savigny.

Gemellaria loricata, Linnæus.

Virago Sound †, 8-15 fms.

Family Cellulariidæ.

MENIPEA, Lamouroux.

Menipea ternata, Ellis & Solander.

Virago Sound.

Menipea ternata, form with many cells in an internode.

Cellularia ternata, forma *gracilis*, Smitt.

Menipea gracilis, Busk.

Off Cumshewa Harbour. [Spitzbergen (*Smitt*); Franklin-

* These stations are all on the eastern coast, Houston Stewart Channel being only a short distance from the extreme southern point of the islands.

† This is the most northerly station at which dredgings were obtained.

Pierce Bay (*Feilden, N. Polar Exp.*); Barents Sea (*Dutch Arctic Exp.*.)]

Menipea compacta, n. sp., form *triplex*.

Zoœcia in triplets, the two lower cells elongate, enlarged above and tapering off below, the upper one much shorter; area oval, occupying about half the length of the cell; margin raised and thin, four spines on the outer side and two on the inner, with a horn-coloured base, some of them stout and pod-like; operculum slender, simple, acicular, placed on the inner side very close to the bottom of the area. *Lateral avicularia* variable in size, sometimes very large, borne on the two lower cells; *anterior avicularia* wanting. *Oœcium* terminal, rounded, expanded above, smooth and punctured. *Internodes* very short and compact, somewhat wedge-shaped; connecting tubes double.

Loc. On weed, Queen Charlotte Islands.

I am not acquainted with any described species to which the present form can be referred; it belongs to the section of the genus which is so characteristic of the Australian seas. A *Menipea* (apparently undescribed) occurs abundantly off California, and has also been found off Vancouver Island, to which *M. compacta* bears a very close resemblance in the details of its structure, and with which it is probably identical, though the Californian form has more cells in the internode, and is furnished with a more fully developed operculum. A distinctive feature of the species is the position of the operculum, very close to the lower extremity of the area.

SCRUPOCELLARIA, Van Beneden.

Scrupocellaria varians, n. sp. (Pl. XIX. figs. 1-1 c.)

Zoarium much branched dichotomously, forming a shrubby tuft. *Zoœcia* biserial, alternate, elongate, enlarged above, tapering off downwards; area about half, or sometimes more than half, the length of the cell, oval, margin thin and smooth, three spines on the outer side above and one on the inner; the portion of the cell below the area tapering, smooth; operculum small, usually trifold. *Lateral avicularium* either small and of normal shape (mandible pointed), or more commonly much elongated upwards, in the direction of the line of zoœcia, extending a considerable way above the top of the cell to which it is attached, consisting of a long channelled beak (free through a great part of its length), terminating above in two spinous points, and a slender setiform mandible, bent at the apex, with an expanded triangular base, which, when at rest,

falls into the groove traversing the beak; usually at the bottom of the area a prominent sessile *avicularium* with pointed mandible. *Vibracular cell* wedge-shaped, the terminal groove stretching transversely across the back of the cell; seta rather long and very slender. *Oœcium* subglobular, smooth and shining.

Height of the tuft $\frac{1}{2}$ an inch.

Loc. Off Cumshewa Harbour, growing on shell.

The remarkable point in the present species is the curious modification of the lateral *avicularium*. In form and structure the *avicularian* appendages are, as a rule, more constant in this and the kindred genera than in most other sections of the Polyzoa. I know of no deviation from the ordinary type except in the present case and in a species (which I hope shortly to describe) which is furnished with an elongate, subspatulate *avicularium*, very unlike the normal form of the appendage in this tribe.

In *S. varians* both the ordinary and the modified form of the *avicularium* occur on the same specimens; the two are intermingled, but the latter is much the more abundant. I venture to think that we have here additional evidence of a very striking kind, of that instability of the *avicularian* structure, upon which I have often insisted.

Apart from its *avicularium*, *S. varians* presents no very striking features; and, of course, the variability in this organ would not in itself constitute a specific distinction. In other respects, however, it is, I believe, sufficiently distinct from the various described forms.

Scrupocellaria brevisetis, n. sp.

Zoecia biserial, alternate, elongate, tapering downward, surface smooth and glossy; area oval, about half the length of the cell or less, set somewhat obliquely, surrounded by a rather broad smooth border; three spines on the outer side above, and one or two on the inner; operculum small, placed about the middle of the inner side, when mature entire or with a slightly irregular margin, narrow towards the base, expanding above it, surface smooth. *Lateral avicularium* sometimes gigantic and much swollen below, sometimes very small, with a triangular mandible somewhat bent at the apex; the beak strongly hooked. *Vibracular cell* placed just above the lateral *avicularium*, rounded and somewhat contracted below, expanding very slightly upward, truncate above, a constriction about the middle, immediately below which is the orifice from which the radical fibre springs, the terminal groove straight or slightly oblique, stretching across the back of the cell;

seta very short, about twice the length of the groove. *Oæcium* (?). *Zoarium* of a stout habit; internodes moderately long (7-10 cells).

Loc. Houston Stewart Channel.

This species bears some resemblance to *S. scrupea*, but is at once distinguishable from it by the differences in the vi-braculum.

CABEREA, Lamouroux.

Caberea Ellisii, Fleming.

Off Cumshewa Harbour. [Vancouver Island (*Dawson*); Labrador and Maine, Greenland, Iceland, Scandinavia and Finmark, Britain (North), Brittany.]

Family Bicellariidæ.

BUGULA, Oken.

Bugula avicularia, Linnæus.

Houston Stewart Channel, 8-20 fms.; Virago Sound, 8-15 fms. [Spitzbergen, Britain, Adriatic, Australia.]

Bugula Murrayana (normal), Johnston.

Houston Stewart Channel, in shell; Virago Sound. [Vancouver Island (*Dawson*); Britain (chiefly north), Scandinavia, Spitzbergen, Barents Sea, Greenland, Labrador, Gulf of St. Lawrence, New England.]

Family Cellariidæ.

CELLARIA, Lamouroux (part.).

Cellaria borealis, Busk.

Virago Sound. Off Cumshewa Harbour; Houston Stewart Channel. Abundant and very fine. [West Greenland, 6-10 fms.]

The internodes in this fine and characteristic species expand regularly from the base upward, and are often of very considerable width above. The specimens from the Queen Charlotte Islands are in some cases very large, attaining a height of more than $2\frac{1}{2}$ inches.

Cellaria mandibulata, n. sp.

Zoarium slender, irregularly branched; the internodes attenuated at the base, joints black. *Zoæcia* contiguous in the same line, bluntly pointed or rounded above, the margin trending outwards to about the middle, and from this point

slanting inwards to the base, truncate below (lozenge-shaped); area slightly depressed, smooth, margin distinct, subcrenulate; orifice semicircular, situated in the upper third of the area, lower lip arched. *Avicularian cells* in the line of the ordinary zoecia, which they resemble, but are shorter and very much broader (about twice the width), prominent above, almost the whole of the upper portion (more than a third of the length) occupied by a semicircular orifice, which is filled in by a stout mandibular plate of a very dark horn-colour, the edge black. *Oæcial opening* at the very top of the cell, and of much the same shape as the orifice.

Loc. Houston Stewart Channel; Virago Sound.

C. mandibulata bears a close resemblance in most respects to *C. fistulosa*, and is separated from it on the strength of the very marked differences in the avicularium, which is found to be the best criterion for distinguishing specific forms in this genus. The avicularium of the latter is (morphologically) a dwarfed cell, with the oral valve slightly modified. In the present species the avicularian cell is in some respects larger than the ordinary zoecium, from which it is distinguished chiefly by its great breadth, its prominence, and its ample, dark-coloured, semicircular mandible (or modified oral valve). It represents one of the earliest stages in the developmental history of this appendage*.

It may be a question, perhaps, whether *C. mandibulata* should not be regarded as a "form" of *C. fistulosa*; but it has much the same kind of claim to specific rank as *C. sinuosa*. After all, these systematic distinctions are only meant to mark the developmental steps.

Family Membraniporidæ.

Group a (*FLUSTRIDÆ*).

FLUSTRA, Linnæus.

Flustra membranaceo-truncata, Smitt.

Virago Sound, 8-15 fms. [North Sea, Arctic Seas, common.]

Group b.

MEMBRANIPORA, De Blainville.

Membranipora unicornis, Fleming.

Houston Stewart Channel, 8-20 fms.; very fine. [Spitz-

* We have a very similar form in *Cellaria hirsuta*, MacGillivray, and *Membranipora longicornis*, mihi. See 'History of British Marine Polyzoa,' Introduction, p. lxxviii, fig. xxx.

bergen, Greenland, Nova Zembla, Labrador, Britain (north-east.)

Membranipora Rosselii, Audouin.

Houston Stewart Channel, on shells, not uncommon. [Britain, Algiers, Adriatic.]

Membranipora tenuirostris, Hincks.

Off Cumshewa Harbour; Houston Stewart Channel. [Mediterranean; Madeira.]

Membranipora horrida, Hincks.

Houston Stewart Channel, 8-10 fms.; off Cumshewa Harbour. Abundant and very fine, forming very large, reddish-brown patches on shells. [California; Vancouver Island.]

Membranipora patula, Hincks.

Virago Sound; Houston Stewart Channel, &c., very common and of luxuriant growth. [California.]

The oecium was not observed on Californian specimens, but is present in profusion on those from the Queen Charlotte Islands. It is shallow, cucullate, smooth, and closed in front by a chitinous operculum. The species forms brown or reddish-brown patches.

Membranipora variegata, Hincks.

Dolomite Narrows, in about 8 fms., very plentiful; spreading in large patches over the surface of shells. [California.]

Specimens occur in which there are two of the pedicellate avicularia at opposite sides of the cell, instead of the normal one. The spines are without the dark-coloured base, which is a conspicuous feature in the Californian form.

Membranipora acifera, MacGillivray, form *multispinata*.
(Pl. XIX. fig. 4.)

The form from the Queen Charlotte Islands which I refer to MacGillivray's species differs in some respects from his description; but the two agree so perfectly in the most striking and important characters that there is hardly room for doubt as to their identity. He describes his *M. acifera* as having "one or two sharp incurved spines on each side, and usually a small round spine in each upper angle." In the North Pacific specimens, which are finely developed, there are two erect and pointed spines at the top of the cell, and along each

side six or seven rather tall, straight, acuminate spines, which slope inwards without meeting. The spines are at best a somewhat variable character; and the single specimen which MacGillivray examined can hardly be accepted as fixing the normal armature of his species. The general character and the remarkable avicularium are the same in both forms.

Virago Sound. [Victoria (*MacGillivray*).]

Membranipora echinus, n. sp. (Pl. XIX. fig. 5.)

Zoecia quincuncial, oval, distinct, separated by rather deep and wide interspaces; front wall wholly membranous; two spines at the top and from seven to eight slender, closely set, pointed, and rather tall spines down each side, which slant inwards but barely meet in the centre; on each side, springing from behind the second spine from the top, a pedicellate avicularium, the upper part large and much swollen (closely resembling a "bird's head"), very slightly hooked at the extremity, borne on a very thin pedicle; mandible slender, pointed. *Oœcium* (?)

Loc. Houston Stewart Channel; Cumshewa, 20 fms.

A very marked characteristic of this species (which belongs to the *M. spinifera* section) is the distinctness of the zoecia, which lie so much apart from one another that the whole cell to its very base is visible, the wall flanging outward slightly below. It is very common amongst the dredgings.

Membranipora exilis, n. sp. (Pl. XX. fig. 1.)

Zoecia very regularly quincuncial, oblong, slightly enlarged about the middle, subtruncate above and below, set closely together, of considerable size and delicate half membranaceous material; margin thin, a good deal raised, the front wall wholly membranous; at the top of the cell two pointed spines, and (usually) two on one side and three on the other situated in the upper half of the cell, slender, acuminate, erect, jointed to a tubular base; a sessile *avicularium* on the margin at one side (often wanting) just below the top; beak much swollen below, inclined upwards, scarcely bent at the extremity; mandible blunt, directed downwards. *Oœcium* (?)

Loc. Houston Stewart Channel, enveloping *Cellaria borealis*, Busk, with a very thin crust.

Membranipora Sophiae, Busk, form *matura*.
(Pl. XX. fig. 2.)

Zoecia oval, quincuncial, set very closely together; front wall

wholly membranous; margin thin, smooth, on each side from four to six sharply pointed spines, which bend rather abruptly over the area and meet in the middle; an *avicularium* at each side on the margin, just below the upper end, slightly raised, pointed, the mandible directed upwards, a small erect spine at the base of each *avicularium*; at the bottom of the cell a single *avicularium*, with an elongate triangular mandible, variously turned (sometimes two). *Oæcium* rounded, smooth, with a rib arching across the front, frequently carried up into a peak.

Loc. Houston Stewart Channel. [Assistance Bay; Spitzbergen.]

Described as *M. conferta* ('Annals' for September 1882). I am now convinced that it is a form of *M. Sophiæ*. Smitt notices intermediate varieties.

Membranipora nigrans, n. sp. (Pl. XIX. figs. 2, 2 a.)

Zoëcia large, ovate (variable in shape, sometimes arched above and narrowing downwards, sometimes broad-ovate, sometimes oval), irregularly disposed; margins much elevated, crenate, the whole front of the cell covered by a rather coarse stout membrane of a black colour; oral valve large; on each side at the top a pointed *avicularium*, placed on the margin, depressed at the base, the beak sloping upwards, mandible directed obliquely downwards; very large *avicularia*, slightly raised in front, with a broad triangular mandible, which is bent abruptly in the middle, scattered amongst the zoëcia. *Oæcium* very shallow, just covering the extremity of the cell, smooth, with a raised rib across it a little above the oral margin. *Zoarium* of a deep black colour, forming large irregularly spreading crusts.

Loc. Houston Stewart Channel; Virago Sound.

A fine characteristic species, distinguished by its dark colour and its remarkably large zoëcia.

Membranipora levata, n. sp. (Pl. XIX. figs. 6, 6 a.)

Zoëcia small, oval, distinct, quincuncial; margin very slightly raised, thin, delicately crenate, the whole front closed in by a smooth light-coloured and rather glossy membrane, which lies very much on a level with the edge of the cell; above each zoëcium, on a somewhat quadrate area, a small nodule with a pointed *avicularium* on one side of it, the mandible directed transversely upward. *Oæcium* rounded, smooth, umbonate.

Loc. Houston Stewart Channel, 15–20 fms; Cumshewa; very abundant.

Membranipora protecta, n. sp. (Pl. XIX. fig. 3.)

Zoæcia contracted above, expanded below, disposed rather irregularly in lines, set closely together, front wall wholly membranous; margin thickened, minutely granulous; two erect spines (sometimes bifid) at the top; below them on each side a single bifid spine, and below these two large, branched, antler-like spines, which meet over the aperture; numerous *avicularia* interspersed amongst the cells, placed on a distinct area, beak elongate, slanting upwards, traversed by a narrow groove, mandible with a triangular base, the upper portion long, slender, setiform. *Oæcium* (?).

Loc. Virago Sound; Cumshewa, on shell.

Other species, armed with more or less branching spines, are:—*M. cornigera*, Busk, from Shetland; *M. bellula*, Hincks, Australia, &c.; *M. cervicornis*, Busk, Victoria; and *M. cervicornis*, Haswell*, Queensland, in which the antler-like processes are described as arising from "one side of the cell." This species is also furnished with a strong vibraculoid spine below the area, and seems to be destitute of *avicularia*. The present form is certainly distinct from all the above.

Membranipora corniculifera, n. sp. (Pl. XX. figs. 4, 4 a.)

Zoæcia ovate, much narrowed towards the oral extremity, expanded below, distinct; margin rather thick, granulated; area occupying the whole of the front of the cell, with a membranous covering; from six to nine tall, stout, erect spines round the upper part of the cell; below them about four on each side, bent inward over the area, of which the uppermost pair are the stoutest, the rest being extremely slender and acuminate; two or three very long and much attenuated spinous processes springing from the wall of the cell at the top, behind the marginal spines; oral valve large, filling the narrow neck-like extremity of the cell above; on the outer surface of the side wall, a little below the top, a minute *avicularium* (Pl. XX. fig. 4 a), with a pointed mandible directed outwards. *Oæcium* small, rounded, smooth, with a horn-like process projecting from the centre of the oral margin.

Loc. Cumshewa, on shell.

This species is remarkable for its wonderful array of spines. The position of the *avicularium* on the outer surface of the cell below the margin is also peculiar.

* This name cannot of course be retained, having been previously employed by Busk. I venture to suggest as a substitute for it *M. Haswellii*, in recognition of the services of one of the earnest workers who are doing so much for Australian natural history.

Membranipora minuscula, n. sp. (Pl. XX. figs. 3, 3 a.)

Zoëcia small, oval, arranged in quincunx (somewhat irregularly); margin a good deal raised, thin, smooth, no spines; on an oblong area, placed above the cell, occasionally a small circular *avicularium*, slightly raised, the mandible directed upwards. *Oœcium* semicircular, shallow, just covering the extremity of the cell, smooth, with a subcircular membranous space at the back (? avicularian). *Zoarium* forming a thin flat crust, usually of small size.

Loc. Houston Stewart Channel, &c., common.

Membranipora membranacea, Linnæus.

Queen Charlotte Islands, incrusting the stem of a sea-weed.

The only specimen that occurs is covered with numerous tall, very stout, membranous processes, which occupy the place of one of the spines at the top of the zoœcium. They are smooth and glossy, narrow at the base, somewhat enlarged about the middle, and taper off to a point above. They are no doubt modified spines; but we have no clue to their history. They must not be confounded with the processes on the so-called "tower-cells," which originate on the membranous front wall of the zoœcium; both are probably abnormal growths with no special function.

[Norway, Britain, Brittany, Adriatic; New Zealand, Australia.]

Membranipora membranacea, form *serrata*.

Zoëcia rectangular-oblong, greatly elongated; margins smooth; at the top of the cell, on each side, a short blunt spine; round the inner margin a narrow crenated border.

Loc. Virago Sound, spreading over the surface of a sea-weed.

This is a remarkably pretty variety, and presents a very distinctive appearance. The cells are of unusual length, and exhibit great regularity both of form and arrangement. But the character which distinguishes it most and gives it a very marked individuality is the narrow crenate edging which fringes the inner margin of the cell. The crenulations are small and close-set and for the most part regular; here and there longer spinous processes rise amongst them and project over the area. One of these is always placed in the centre of the lower margin of the cell.

Family **Microporidæ.****MICROPORA**, Gray.*Micropora coriacea*, Esper, var.

The form in which the marginal nodules are wanting is extremely abundant amongst the dredgings. It is, indeed, one of the commonest species, covering many of the shells with its flat glossy crust, and seldom altogether absent from any.

[Bass's Straits, Australia, var. ; Britain, Florida, with the nodules.]

Family **Cribrilinidæ.****CRIBRILINA**, Gray.*Cribrilina furcata*, n. sp. (Pl. XX. fig. 5.)

Zoæcia ovate, quincuncial, very regularly disposed, moderately convex ; surface smooth and lustrous, often of a reddish brown colour ; on each side from four to six shallow grooves, radiating to a median line, and a central one below, which are occupied by a row of roundish pores set very closely together, the ridges between them slightly raised, usually bearing several elliptical pores ; orifice arched above, straight below, much broader than high, on each side a stout bifid spine (occasionally simple) ; peristome much thickened in front and rising into a central mucro. *Avicularia* none. *Oæcium* large (covering about half the cell above it), rounded, taller than broad, depressed in front, with a shallow oral arch ; surface smooth, rather thickly punctured, the forked spines showing in front of it.

Loc. Cumshewa ; Houston Stewart Channel ; common.

The furcate spine is often wanting, especially in the older cells.

Cribrilina hippocrepis, n. sp. (Pl. XX. figs. 6, 6 a.)

Zoæcia ovate, quincuncial ; surface lustrous, flattish (sutures very shallow), traversed by radiating ridges (from three to five on each side), which pass from the sides to the centre (no median keel), the grooves between them occupied by a line of rather large oblong pores ; at the origin of each ridge an elliptical foramen, covered in by a delicate membrane ; orifice large, well arched above, constricted a little above the lower margin, which is straight ; operculum of a rich reddish brown ; peristome not elevated, lower margin much thickened, usually terminating on each side in a knob ; large, elongate, depressed spatulate avicularia scattered amongst the cells. *Oæcium* (?).

Surface of *zoarium* very flat; colour brown, with a tinge of red; in old states white and highly calcified.

Primary cell ovate, area occupying about three fourths of the front surface, with a membranous covering; margin slightly thickened; about fourteen spines surrounding the area, which originate outside and a little below the margin.

Loc. Cumshewa; Houston Stewart Channel; abundant.

The primary cell is interesting as giving a clue to the genetic history of the species and of the Cribriline form generally. There can be little doubt that the ridges which constitute the chief framework of the front wall in the adult are modifications of the spines, which are preserved in the early condition of the cell.

EXPLANATION OF THE PLATES.

PLATE XIX.

- Fig. 1.* *Scrupocellaria varians*, n. sp., nat. size. 1 *a.* Zoecia, magnified.
1 *b.* Dorsal surface. 1 *c.* Avicularia.
Fig. 2. *Membranipora nigrans*. 2 *a.* Large avicularium.
Fig. 3. *Membranipora protecta*, n. sp.
Fig. 4. *Membranipora acifera*, MacGillivray, form *multispinata*.
Fig. 5. *Membranipora echinus*, n. sp.
Fig. 6. *Membranipora levata*, n. sp. 6 *a.* Ooecium.

PLATE XX.

- Fig. 1.* *Membranipora exilis*, n. sp.
Fig. 2. *Membranipora Sophieæ*, Busk, form *matura*.
Fig. 3. *Membranipora minuscula*, n. sp. 3 *a.* Avicularian area.
Fig. 4. *Membranipora corniculifera*, n. sp. 4 *a.* Zoecium with ovicell, showing the horn-like projection on the latter.
Fig. 5. *Cribrilina furcata*, n. sp.
Fig. 6. *Cribrilina hippocrepis*, n. sp. 6 *a.* Primary cell.

BIBLIOGRAPHICAL NOTICES.

A Monograph of the British Phytophagous Hymenoptera (Tenthredo, Sirex, and Cynips, Linné). By PETER CAMERON. Vol. i. 8vo. London: Ray Society, 1882.

AMONG the groups of insects which may be regarded as generally neglected by British entomologists, the Hymenoptera, as a whole, occupy a tolerably prominent place. Some few of us pay attention to the bees, wasps, and sand-wasps of the country; and the ants are pretty well known; but the great assemblage of insects forming the